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U. S. NAVAL ACADEMY, ANNAPOLIS,

APRIL 13, 1876.

Commander EDWARD TERRY in the Chair.

TWO LESSONS FROM THE FUTURE.

BY LIEUT. T. B. M. MASON, U. S. N.

ESSAYONS.

GENTLEMEN:

The two letters which I propose to submit to your consideration this evening will, I hope, explain themselves. As you will see by the dates, they are supposed to be written in the future, and are merely conjectures as to the probable results of possible events. They are supposed to be written by an officer—in the first holding the rank of Lieutenant, in the second, after a lapse of nearly a third of a century, that of Rear-Admiral. The friend in the first place holding the rank of Lieutenant, in the second, having for many years retired to the quiet of civil life.

SAN BOLO, DONLAND, JULY 4th, 1880.

DEAR FRIEND:

This is a melancholy way to spend the anniversary of our independence, I being at this moment anything but independent. I was sent here, a month ago, with about one hundred other officers, to rusticate until peace is declared, as there are no means of exchanging us. We

are on parole and allowed to wander within the military limits of this place.

As you were a spectator, and an actor, at the battle of the 8th of May, off Cady, it is unnecessary for me to recount to you more than the part taken by our ship. You know I was aboard the Franklin, our crack big ship, bearing the flag of the Commander-in-chief. When the enemy hove in sight, we formed with the other ships in order of battle, and manœuvering for some time, came in contact with them. You know that they have vastly improved their navy, since '76, and brought against us a force of twelve large iron clads, carrying very heavy English guns and well manned; besides they had quite a number of small steamers fitted with heavy torpedoes. As soon as they were in range, we opened fire, but we might as well have been throwing peas at a stone wall, whereas we received a number of heavy shells, some passing through us and some bursting aboard of us; in a few minutes our engines were disabled; we tried to signal for assistance, but neither this signal nor any that we had made since the firing commenced, attracted the slightest attention; every body seemed to be looking out for themselves. At last a big fellow deliberately shoved his nose almost through us, and our ship went down in no time. I was picked up by lucky chance, and I think that I am the only one left to tell the story, from our vessel. The Trenton, which was on our quarter, did splendid service with her guns, but in the end they overpowered her. I saw the old Wabash sunk by a torpedo attached to a vessel very little larger than her own launch. I expect that your ship and the Marion were the only two that escaped.

This *is* a terrible lesson, or *ought* to be, to those who sent us to sea, in ships scarcely able to get out of their own way; some having just returned from foreign stations, in the most dilapitated condition possible to imagine; with inferior ordnance, with green crews in most of the ships, and last but not least, stands the fact that, we really knew nothing of naval tactics or of the peculiar qualities of our vessels necessary to make any tactics a success; not from any fault of our own, but because we had never been able to practice the theories, which were given to us. The fact that our signals could not be seen, or understood, is also significant.

I hope that this will reach you in safety, as I have to send it in rather a roundabout way. I suppose that peace will soon be declared, and it probably will be, as our country is now in the condition of the snake in its hole, not to be attacked in its own lines but having no chance if

it comes out. We will probably, for the sake of our commerce and so forth, have to eat humble pie and talk small.

Let me hear from you.

Believe me your sincere friend,

THO'S NOSAM,
Lieut. U. S. N.

R. SREGOR,
Lieut. U. S. N.
Norfolk, Va.

FLAG-SHIP INDEPENDENCE,
HAMPTON ROADS,
June 30th, 1906.

MY DEAR OLD FRIEND:

You have probably read in the papers non-professional accounts of our great victory off Hatteras. Knowing that you are with us in heart, if not in body, it appeared to me that you would be interested by a minute detail of the means by which our success has been brought about. You must know that we are not in the condition in which you left us, shortly after that terrible day off Cady. *You* thought that our game was up, *I* did not. I trusted to the common sense of our people at large, untramelled by political influence. The present has proved me right. In "81" the reaction set in and we have been steadily improving until, without the expense of our branch in former years, we have to-day the finest fleet afloat.

Our opponents, on the contrary, have made little advance; you know their people tried to copy ours in the old days, and would not appropriate any more money for improvements. They had had no lesson like our Cady.

To begin with, I will take our ships, as without them the guns, ram bows, torpedoes &c. would be useless.

We have now three kinds of vessels. 1st, *The ships of the line*, divided into three classes and all resembling each other, in general outline. They are armored on the bows and in the wake of the engines, boilers, magazines and steering gear. Their engines are capable of driving them up to 16 knots. Their steering gear turns them, on an average, in the circumference of a circle whose radius is 300 yards. They are all provided with ram bows and carry improved spar torpedoes, on the bows and quarters. Each has also a defense against swing torpedoes forward and aft. They are armed as follows.

1st class.	America.	Two 15 inch rifles, firing 2000 lbs. steel projectiles, mounted on pivot carriages forward and aft on spar deck, with ¾ round fire.
	Independence.	
	Columbia.	
	Columbus.	
	Constitution.	Sixteen 12 in. rifles, firing 1000 lb. steel projectiles in broadside on gun deck.
	Liberty.	
2d class.	Hull.	Same as 1st class but with only twelve 12 in. broadside.
	Decatur.	
	Brainbridge.	
	Farragut.	
	Porter.	
	Dupont.	
3d class.	Essex.	Two 12 inch rifles on pivots. Eight 12 inch rifles in broadside.
	Franklin.	
	Brooklyn.	
	Hartford.	
	Wabash.	
	Ironsides.	

2d. *The cruisers*, of which there is a large number. These vessels, answering to the old corvettes, are used on foreign stations, and as a squadron of observation to be attached to the fleet. These vessels are unarmored, carry respectable batteries, and have great speed.

3d. The rams and dispatch tugs. I send you a drawing of both, which you will find in plate I. marked Fig's 1 and 2. The rams are heavily armored, presenting the appearance, at a distance, of large turtles. This arrangement makes them almost invulnerable, as they are very low. They have ram bows of great strength, are provided with a submarine gun in the bow and on each quarter, and are capable of great speed. The dispatch tugs are very fast and have great power. Their engines &c., are protected with a turtle back like the rams. They are fitted with spar torpedoes to be used only if attacked, their duty being to carry messages and look out for "lame ducks."

Having given you a general idea of our ships, I will describe this vessel on which I have the honor of hoisting my flag. She is of about 6,000 tons capacity, shorter and broader than our old ships. This form has been adopted to increase her turning power, which is an all important element for tactical purposes. She resembles, somewhat, in shape, those French vessels that we used to see up the Mediterranean in "70." I have attempted in my sketch, in plate I, marked Fig. 3, to give you an idea of her and of the parts armored and those unarmored. The masts are steel and telescopic, as are also the lower and topsail yards. The rig is that of a barque. For action we telescope everything,

FIG. 1.

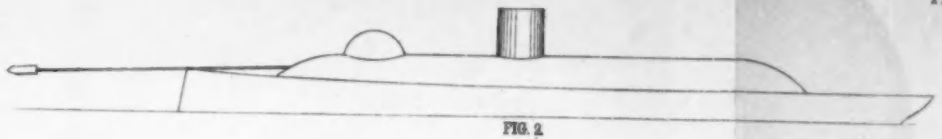


FIG. 2.

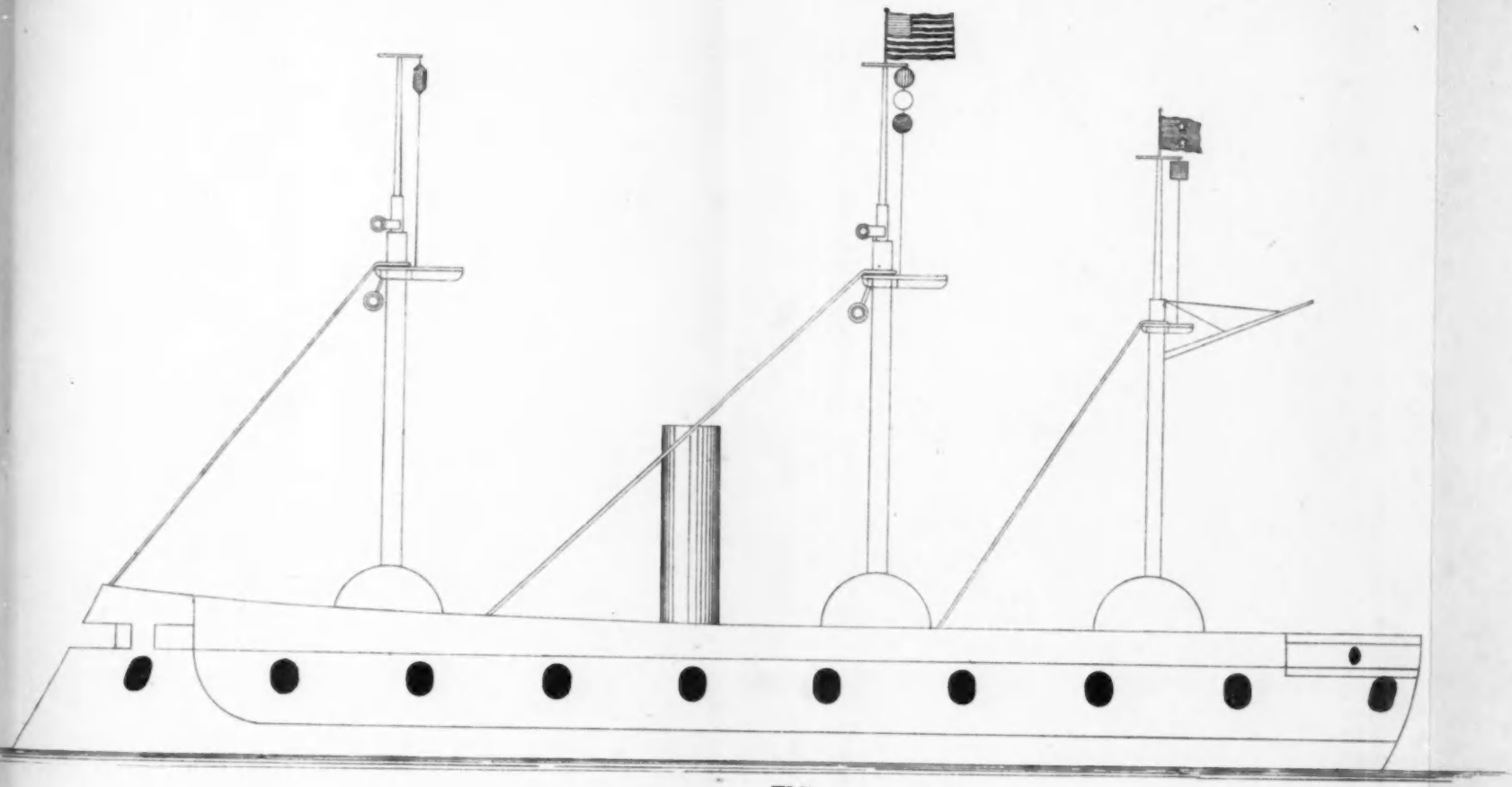
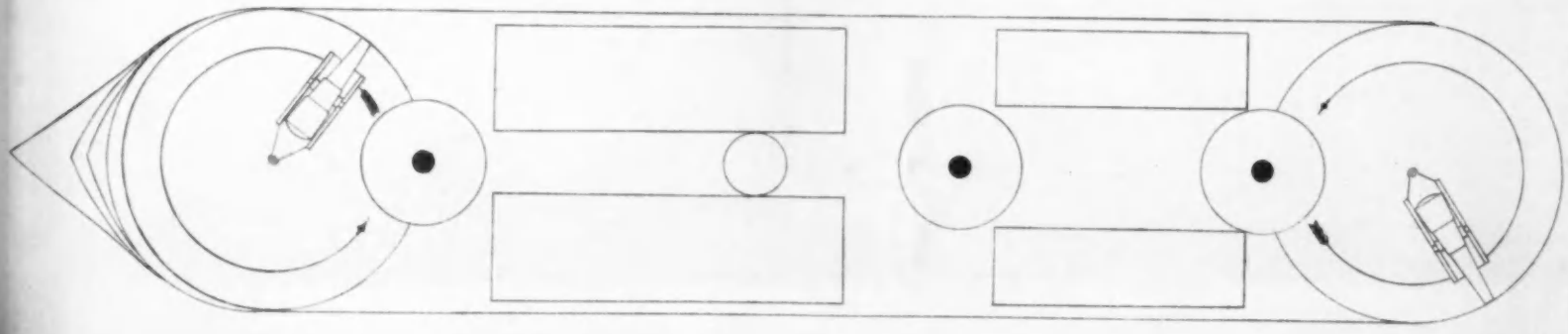


FIG. 3.



sending up light iron signal masts with four armed trucks. Around the foot of each mast is a little dome-shaped house, sufficiently strong to resist bullets and falling spars. The interior of these is more like a telegraph office than any part of an old man-of-war. In the forward one, in action, you would find the Captain, the navigator, and the lieutenant in charge of the forward half of the guns. Telegraphs and speaking tubes connect this dome with the other ones and with the engine and steering rooms. There is also an indicator, showing the position of the helm, the motions of the engine, and the speed of the vessel, this last coming from the velocitometer, which is fitted in a tube, on each side of the ship, well below the water line, so as to be out of the way of boats coming alongside, and of such like accidents. The gunnery lieutenant points and fires his guns and the forward torpedoes by means of electricity. As all the guns are worked by steam, and as the ranges, elevations and angles of concentration have been accurately ascertained, this is reduced to a nicety. The helm is worked by telegraph, the navigator being provided with an accurate table of helm angles for all, and under all circumstances of current and sea. The signals for the fore are worked from the rear part of this dome. In the main dome the signal officer is posted, and it is from this one that the flag-officer directs the motions of the fleet, or of his squadron. In the after dome the Lieutenant in charge of the rear guns and torpedoes, the executive officer and the signal officer for the mizzen are stationed. The domes, as I said before, are so well connected with tubes, &c., that the different officers converse as if they were all in the same one. Besides the domes on the spar deck, there are steel turrets open at the top, to protect the men stationed at the bow and stern pivots from musketry fire. You will ask me what has become of my boats? They were left ashore, and in place of them we have four large bolsas spread on deck, ready for inflation, and use, and capable of carrying all hands. On the gun deck, the forward and after guns are arranged to fire in broadside or directly ahead and astern. The carriages are worked and the guns loaded by steam, so that very few men are visible. The ammunition comes up from shutes, with self closing tops, near the muzzle of each gun. On the berth deck, we find the working people, well protected by the armor, a large fire brigade, ready to proceed to any part of the ship, with the best modern appliances for fighting that dangerous element, a large powder division ready to supply any amount of ammunition in very little time. Aft is the steering room. We do our steering by hydraulic power, so

that one man tends the whole affair under the directions of an officer, who watches the telegraph, from the domes on deck. I send you a plan of the velocitometer, marked fig. 4; it has been found of great use; it being very necessary to know the exact speed of the vessel, at any moment through the water, whether in going ahead, turning or backing; it is only necessary to apply the correction to the given reading, for slip and friction, to attain the true velocity.

Our guns are all of the latest model, which has been adopted, after a long series of trials, at Annapolis. The people growled a little at the necessary expense, but it was only necessary to say "Cady" to them, and the growling ceased; the pride of the American people had been touched, and they were bound to come to the front. We have selected two calibres, the 15 and 12 inch—both very heavy, the 15 much more in comparison, as they are for the heaviest work. The 12 are lighter, so that we can carry a greater number of guns in broadside. What we have lost in individual penetration, we have gained in aggregate when concentrated. Just think of a vessel that can throw 4,000 lbs. from her bow, 12,000 lbs. from her broadside, or 4,000 lbs. from her stern, on a space 20 ft. square. What would Nelson or Farragut have said of this in their days?

We have adopted the submarine gun, for torpedoing in the attack, and the electric spar torpedo for defense, both of the latest pattern, from Newport; which institution, like the Experimental battery, has had its vicissitudes.

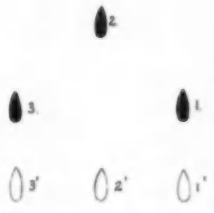
Now that we have examined our inanimate material, let me say a word about our personnel. You will remember, that in "80" many resigned, and many poor fellows closed their final accounts at Cady. We were left nearly without officers and men. Something had to be done, and was done. The Naval Academy was thrown open to all, any boy properly authenticated who wanted to try could come, there was no limit except that of accommodation to the number in classes, but the course was most rigid; great weight being given to professional aptitude and officer-like qualities. From the graduating class of each year as many of the higher members as were required to fill up the deficiencies in the navy list were taken; the others were put in the naval reserve and sent as officers in the merchant service, every vessel having an American charter being forced to take so many; and every line carrying the U. S. mails (American line) was entirely officered by them. Those who elected and were found on examination to be qualified to become engineers went into that branch; those who elected the ma-

Squadron in 1st Order.

SIGNAL. 1.

SIGNAL. 2.

SIGNAL. 3.

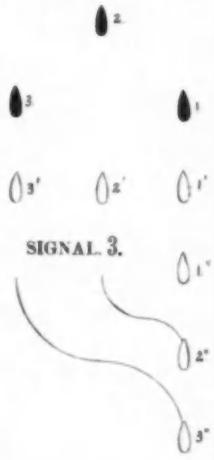


SIGNAL. 4

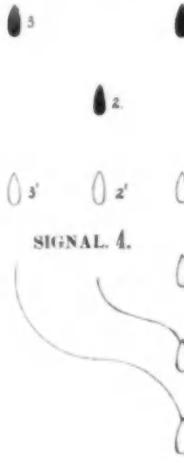
Squadron in 2d Order.

SIGNAL. 2.

SIGNAL 1.



SIGNAL. 3.



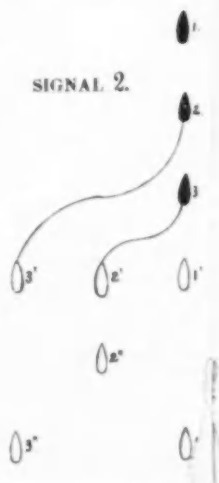
SIGNAL. 4.

Squadron in 3d Order.

SIGNAL 3.

SIGNAL. 1.

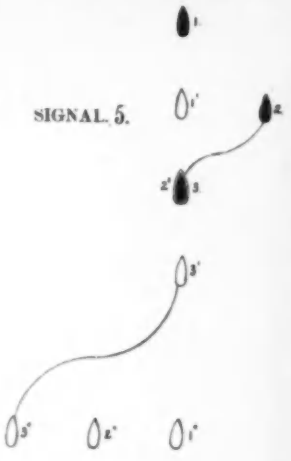
SIGNAL. 2.



SIGNAL. 4

SIGNAL. 4.

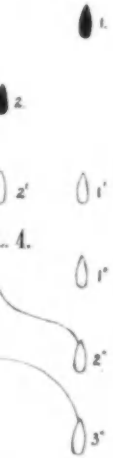
SIGNAL. 5.



SIGNAL. 6.

Squadron in 4th Order.

SIGNAL. 4.



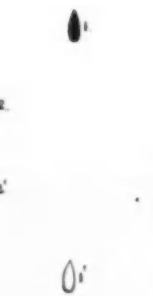
SIGNAL. 5.

SIGNAL. 6.

Squadron in 5th Order

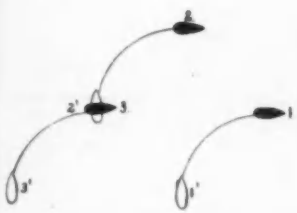
SIGNAL. 5.

SIGNAL. 4.



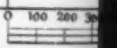
SIGNAL. 5.

SIGNAL. 6.

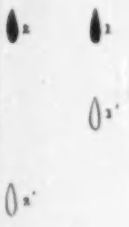


Squadron in 6th Order

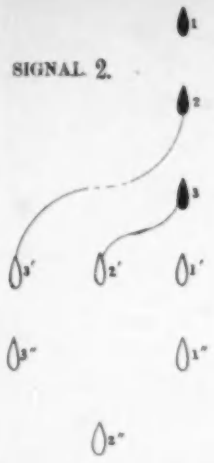
SIGNAL. 6.



SIGNAL. 1.

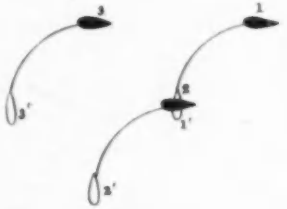


SIGNAL. 2.

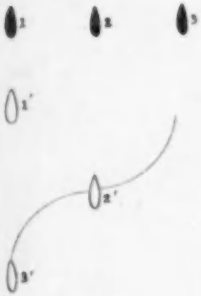


SIGNAL. 3.

SIGNAL. 5.



SIGNAL. 6.



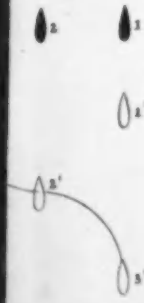
SIGNAL. 1.

SIGNAL. 2.

SIGNAL. 3.

SIGNAL. 4.

SIGNAL. 6.

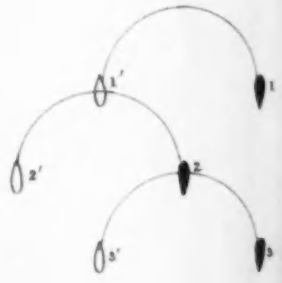


SIGNAL. 1.

SIGNAL. 2.

SIGNAL. 3.

SIGNAL. 4.



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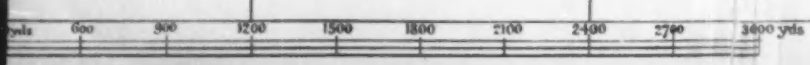


rine corps and pay department (the latter having to give bonds) were allowed to follow their inclinations. Thus we have to-day a corps of thoroughly trained officers and a splendid reserve. The officers of the reserve do six months service, every two years, for which they receive full pay.

Our apprentice system has supplied us with thoroughly well fitted Americans for every branch required, and has also built up a reserve of long service men, who, like the officers of the reserve, are at all times in training. In time of peace, our first and second rates are used as school ships, in the large ports, equally distributed along the whole coast; their crews, not required for actual work on board ship, are temporarily employed at the yards and naval stations. The 3d rates are employed as a practice squadron for officers and men. The squadron of observation, for the Fleet, are employed as cruisers on the home station.

Every year the Fleet is assembled, at some rendezvous on the coast, for drill. The places of rendezvous and the time of rendezvousing are changed each time, so that, a war threatening, we can assemble without causing suspicion. These drills are carried on for instruction and improvement.

Commanding officers are rarely changed so that they may become thoroughly acquainted with the ships that they command. Much time is devoted to individual ship and detached squadron movements, and all results are tabulated. Ships are turned, under all conditions that are liable to occur, and in all trims, so that separate tables may be obtained for future reference. A store squadron of fast steamers, to carry extra stores and coal, is requisitioned each year from the mail lines. Ships are kept fully coaled at all times.

Our fleet is divided into squadrons of three vessels each, one of each class of the line. Two of these squadrons are commanded by rear admirals and three by commodores, the commander-in-chief hoisting his flag aboard the ship of the commodore whose squadron is assigned to the center. The flag ships receive the numbers from 1 to 5 in order of rank; this is also the number of the squadron. The other ships of each squadron are numbered respectively, 12, 13, 22, 23, 32, 33, 42, 43 52 and 53. The rams and tugs are divided amongst the squadrons. The flying squadron, commanded by a rear-admiral, and consisting of six corvettes, receives the numbers 6, 62, 63, 64, 65 and 66.

For squadrons there are six orders of steaming and six orders of battle. See plate II. The distance and interval, in order of steaming, is

equal to the diameter of the average circle of turning; this is found by actual experiment and is published in general orders. The distance and interval in battle is equal to the radius of the circle of turning. In the left hand column you will find the six orders above mentioned. The parallel lines are equidistant, being placed one radius from each other.

In the right hand columns I have tabulated the five changes possible from any one of these given orders. Attached to each you will find its signal order, which I shall explain hereafter.

The squadrons, being thoroughly drilled, are united in fleet formation. There is one order of fleet steaming and one order of battle. The order of steaming is in three columns, fig. 5, plate III., the squadrons being formed in the following order; first squadron in 2nd order forming the centre; second squadron in first order forming the van; third squadron in 1st order forming the rear; fourth squadron in 2nd order forming the right; fifth squadron in 2nd order forming the left. You will see, by this arrangement, that the commander-in-chief is in the center, where we have decided, by practice, that he should be, because he is safest there and because he can better observe and direct the movements. Also because if he were in the van in one formation, in the next he might be in the rear. The center of each of the sides is occupied by a subordinate flag officer who, aspiring to higher honors, is at liberty to set an example of prowess.

I have also shown, in figure 1, several changes of direction. You will see that the order is not broken by any change, that the new course, with the exception of the wheel, is the only necessary signal to be made; the hauling down marking the moment of execution and that the relative designations of Van, Rear &c., change to correspond with the new position.

Fig. 2 represents the change from the order of steaming to the order of battle, executed at the hauling down of the battle signal on board No. 1, each squadron manœuvering as in squadron tactics. The order of battle, shown in Fig. 6, is very strong. Its principal qualities are an allround fire, shown in fig. 8, a wedge for the attack, and echelon for defense, close supporting distances, solidity and great mobility, the center squadron forming a strong nucleus and having its broadsides ready, in connection with the inner broadsides of the regular line, for any vessel that chooses to try the center. I have essayed to show, by several diagrams, marked fig. 3, the innumerable directions and fronts which may be taken up. The wheel is introduced to change front to intermediate points.

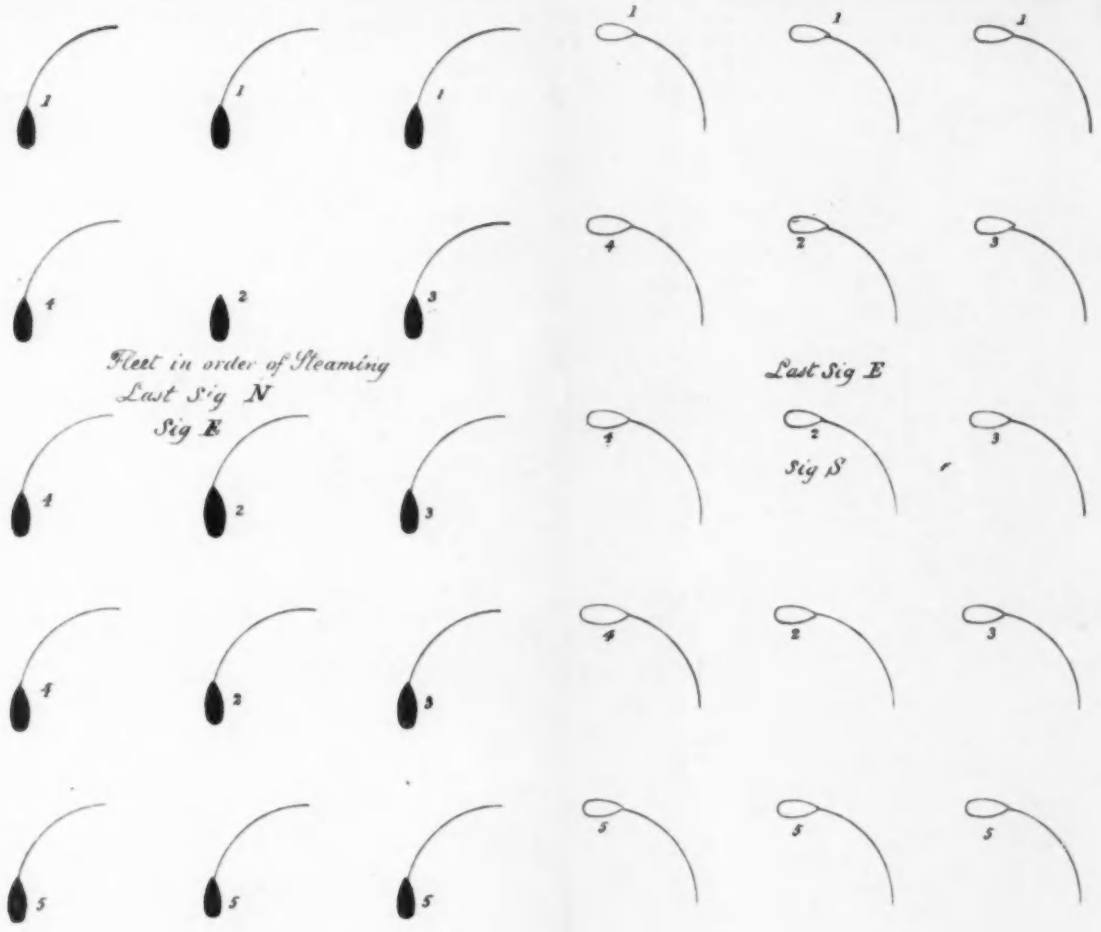
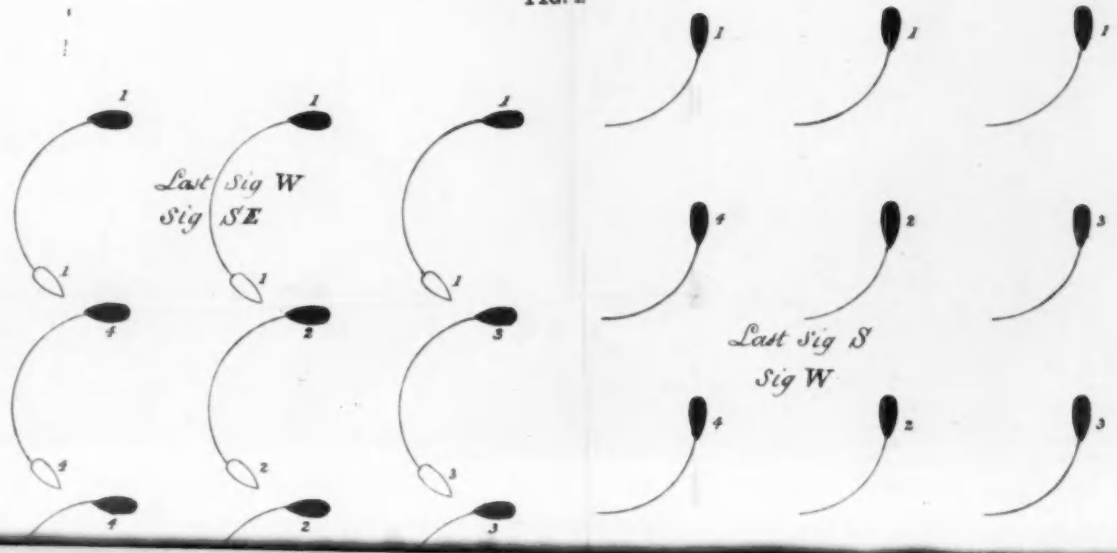

Fleet in order of Steaming
Last Sig N
Sig E
Last Sig E
Sig S

FIG. 1.


Last Sig W
Sig SE
Last Sig S
Sig W

Fleet in order of Steaming
Last Signal S
Sig Order of Battle.

FIG. 2.

Fleet in order of Battle
Last Sig O of B

Fleet in Order of Battle
Last Sig S
Sig B

FIG. 3.

PLATE 3.

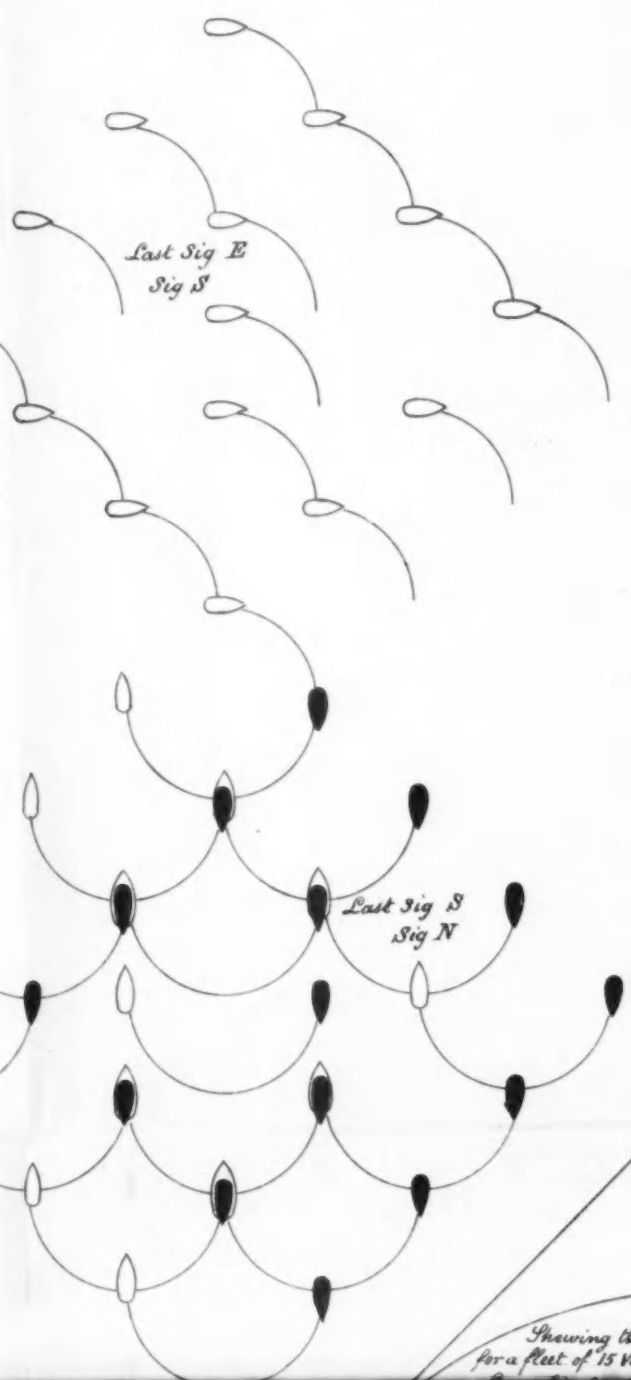


FIG. 4.

Shewing the approximate Circles of Fire
for a fleet of 15 Vessels in "Order of Battle".

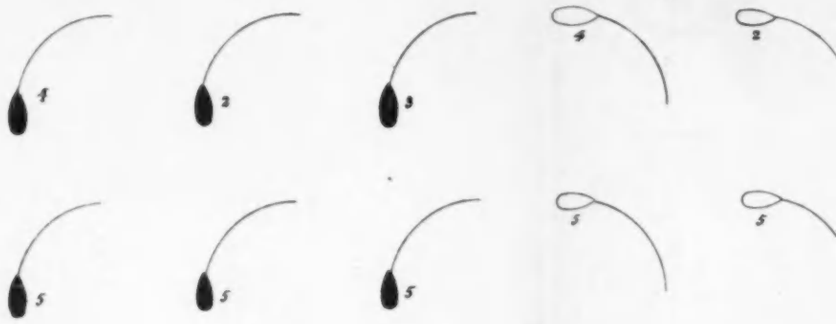
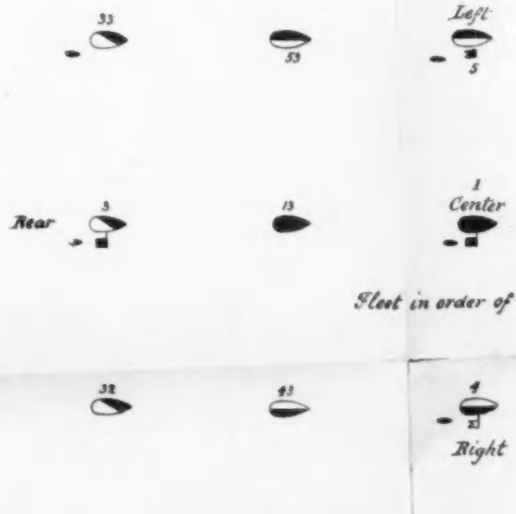
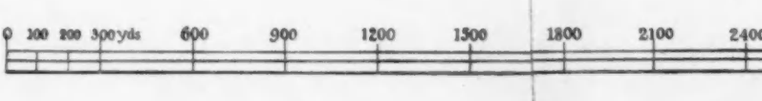


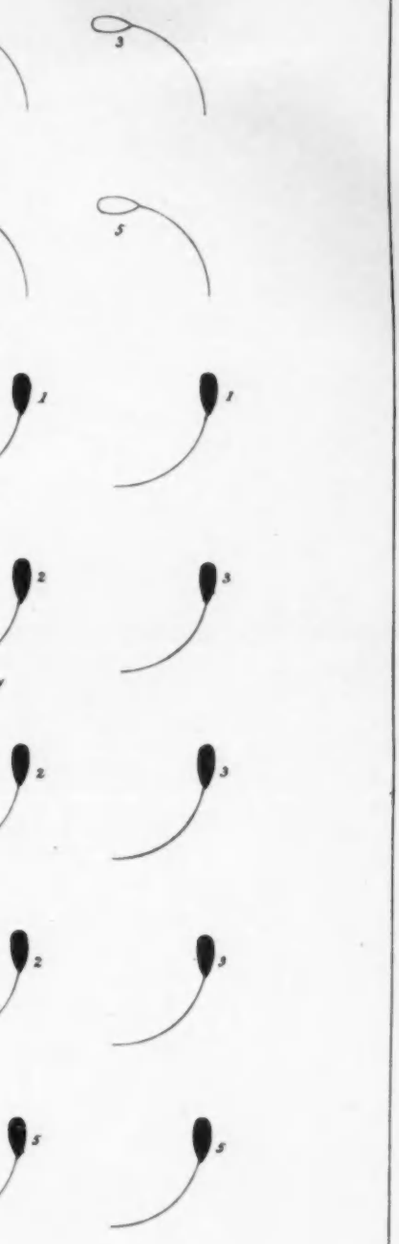
FIG. 1.

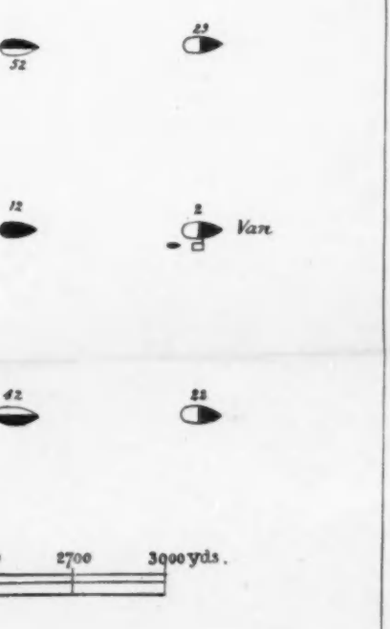
Last Sig W
Sig SE
Last Sig S
Sig W

FIG. 5.


Left
Center
Rear
Right
Fleet in order of Steaming


0 100 200 300 yds
600
900
1200
1500
1800
2100
2400




Van
2700
3000 yds.

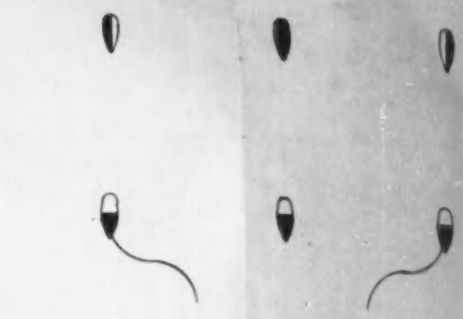


FIG. 2.

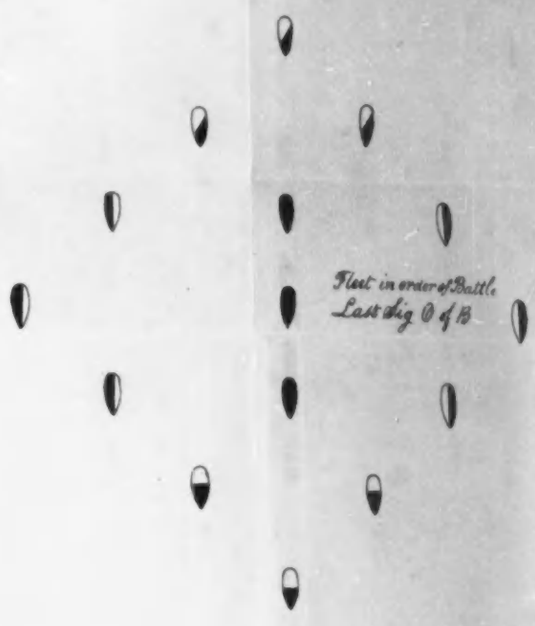

Fleet in order of Battle
Last dig 0 of B

FIG. 6.

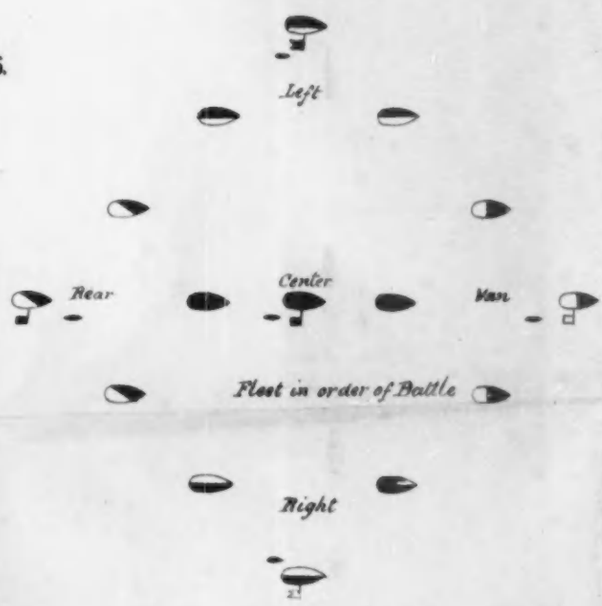
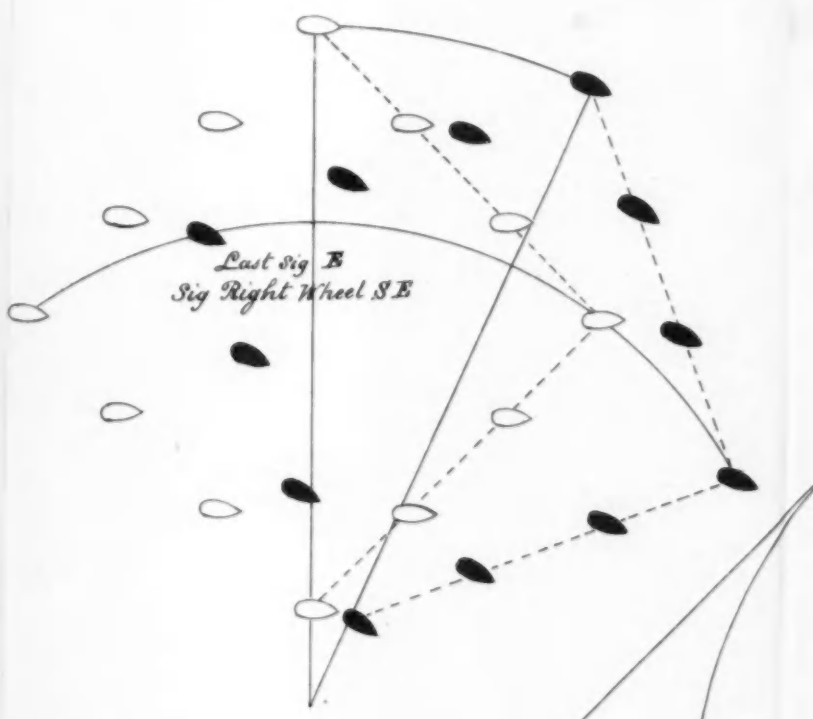

Left
Rear
Center
Van
Fleet in order of Battle
Right

FIG. 2.

FIG. 3.



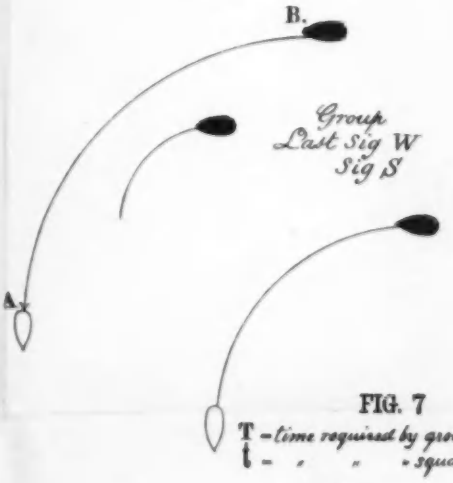
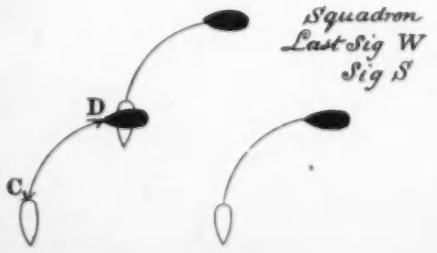


FIG. 7

T - time required by group to turn
t - " " " squadron "

T : t :: AB : CD



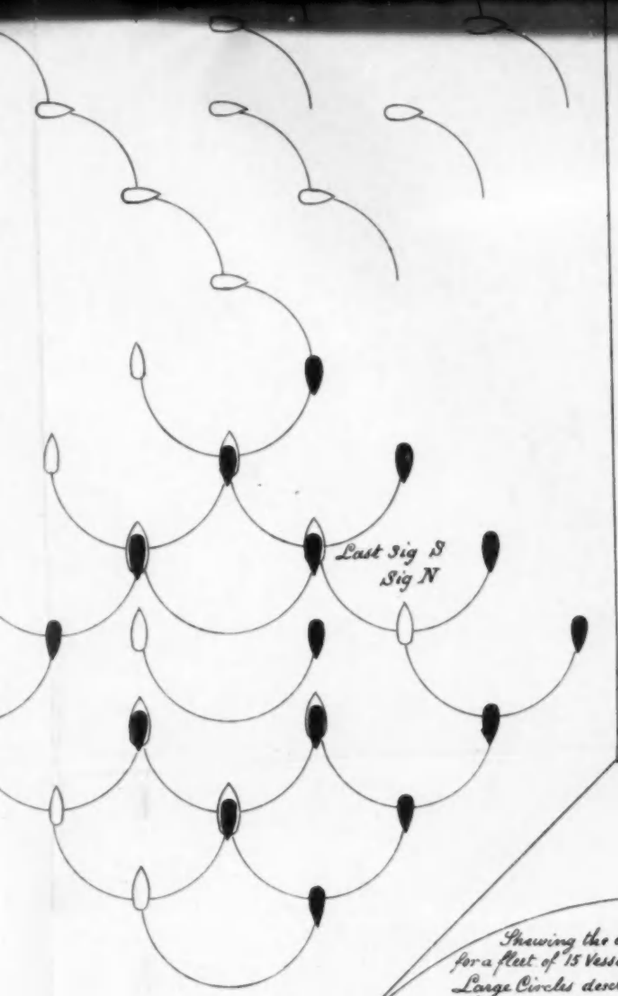
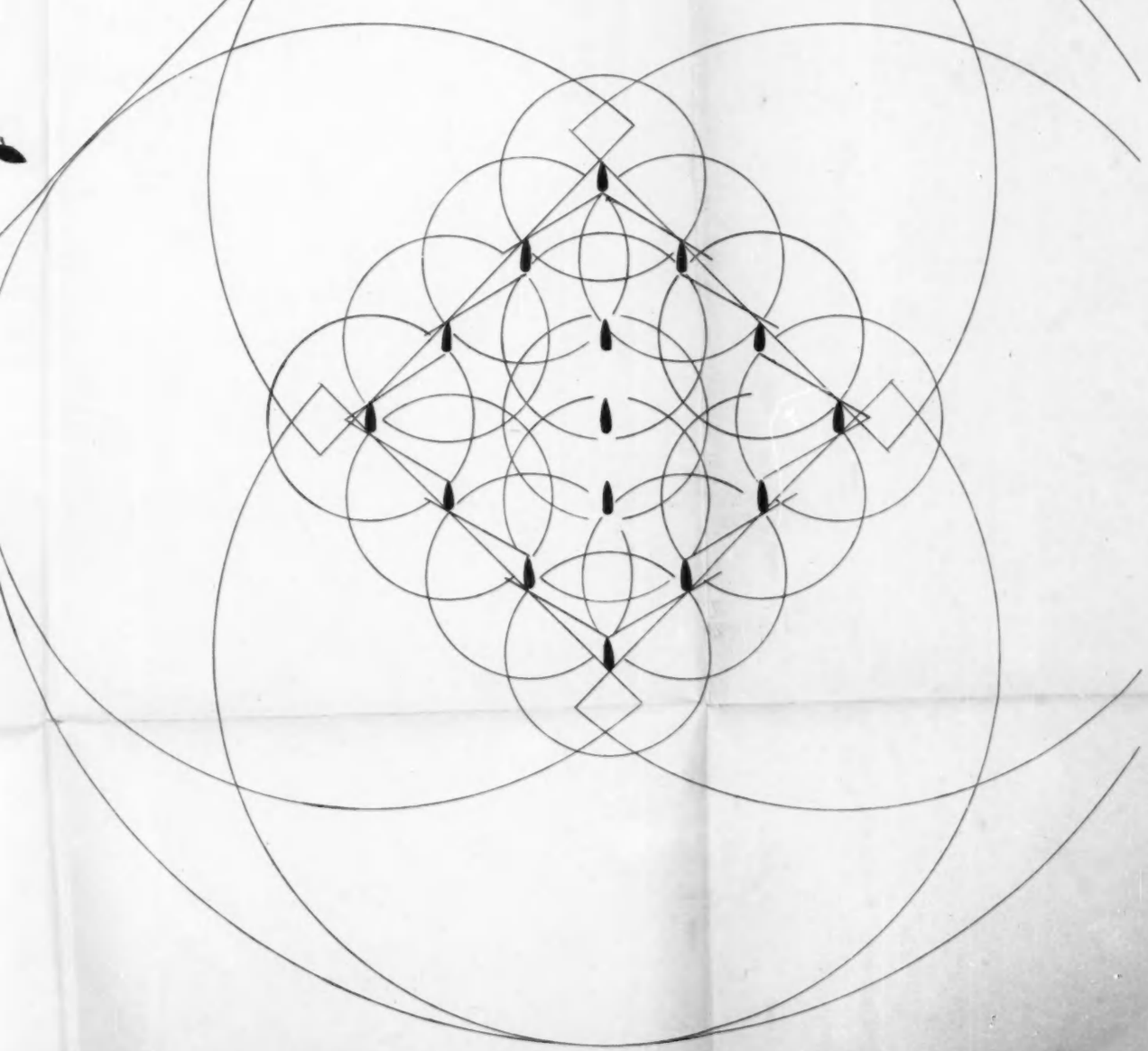


FIG. 4.

Shewing the approximate Circles of Fire
for a fleet of 15 Vessels in "Order of Battle".
Large Circles described with a radius of 1500 yds
Small " " " " 400 "
In the figure the Vessels are supposed to be stationary, - in motion, the
Circles of fire will be decreased according to the velocity at which the Fleet
is moving.

FIG. 8.



I have shown you how we manœuvre, now let me tell you how we cause these manœuvres to be executed. We found that flags were unreliable in battle, and sought a substitute. The great objection to flags is that, in calms, they do not blow out, that they are not visible to windward or to leeward, and that they are constantly fouling. We have therefore adopted solid figures, such as balls, barrels, cones, and double cones, and a combination of the barrel and cone. These are made of colored bunting, spread on frames, which, when not in use, are closed up like a Japanese lantern. Black has also been adopted as a signalling color, the shade of blue being slightly lightened. There are three sets of signals: Compass, Order and General.

In fig. 5, plate I, I have tried to depict them. First, for the cardinal points we use four balls, red, white, blue and black—for the quarter points a small black square, which, when hoisted uppermost, means ¼ towards the lower point, in the middle ½ and under the second ball ¾. As most of the manœuvering signals are made by these, we hoist them at the main, if that be carried away, at the fore.

The order signals are hoisted at the main: they consist of the battle signal, a barrel with a cone at each end. This signifies that the fleet order of battle is to be formed, and everything gotten ready for action; and the squadron order signals, eight barrels differently colored, hoisted at the mizzen, are intended as order signals to the squadron: at the fore under the battle signal, they have the signal significations of wheel, right about, left about, full speed, quick speed, common speed, cease firing and separate.

For general signals, to be hoisted at any mast, a series of cones, inverted cones, and double cones are substituted for the flags. The whistles are also used to mark the moment of execution of a preconcerted plan. The smoke stacks of all vessels are painted to show the squadron to which they belong. The admiral is often to assemble his officers for discussion and mutual improvement. A set of miniature block ships is provided with a table-top arranged in squares, each officer manœuvering his own squadron or ships through each explanation, to make sure that every movement is understood. Any officer showing a dulness in comprehending movements or a lack of knowledge, on any subject connected with tactics, should be relieved immediately. On the commanding officers depends the whole success of every movement, in these days where everything is reduced to a science, and a marplot is not to be tolerated. He may, by his ignorance or stubborness, endanger the well being of the whole fleet. A commander must have iron

nerves, perfect judgment, a quick perception and complete knowledge of his profession. All must look to the commander-in-chief and obey him implicitly. The same rule must govern all inferiors. There must be no question nor doubt. In moments of emergency, the commander-in-chief will have been supposed to have given the necessary directions as to how it is to be met, and if he has not, captains may use their judgment. The commanders of the rams and tugs are to operate intelligently on their own hook, ramming and torpedoing whenever they get a chance and tugging whenever there is a necessity. They are to be young men of known coolness, intelligence, and good sense; every hope of advancement being open to them, if they are successful.

I have now brought you up to the period of our late battle, as far as improvements and inventions are concerned. I believe that I forgot to mention the telemeter, which has been so much improved, since your day, that it can be used in action, and the bearing vane, an instrument by which the bearing of any object may be measured instantaneously on the naval square; it is placed in the center dome, all ranges being taken from and on the mainmast. Distances and intervals are measured from the same point.

On the 15th of May the Vice Admiral at New York received the following telegram.

WASHINGTON, May 15, 1906.

VICE ADMIRAL WM. JONES, N. Y.

Fleet rendezvous at Hampton Roads, for exercise. Orders meet you there.

JOHN SMITH,
Admiral of the Navy.

It had been previously concerted that, "for exercise" meant "for action." No suspicion was aroused by the telegram, which leaked into the papers as usual.

This telegram was promulgated, the same day, to the commanders of squadrons and by them to the commanders of vessels. Accompanying it, in another enclosure, was the following confidential order:

All boats, light spars, extra rigging, clothing and small stores not absolutely necessary will be sent ashore. Every ship will take aboard her war allowance of coal and ammunition. Officers and men will send ashore all articles of clothing, mess furniture, &c., not absolutely necessary. All bulkheads will be taken down, and canvas ones rigged instead. Skylights, accommodation ladders and other such fixtures will also be gotten out of the ships. The bolsas will be gotten in work-

Note. For Colors - Horizontal lines denote "Blue."
Perpendicular " " "Red."

Course Signals.

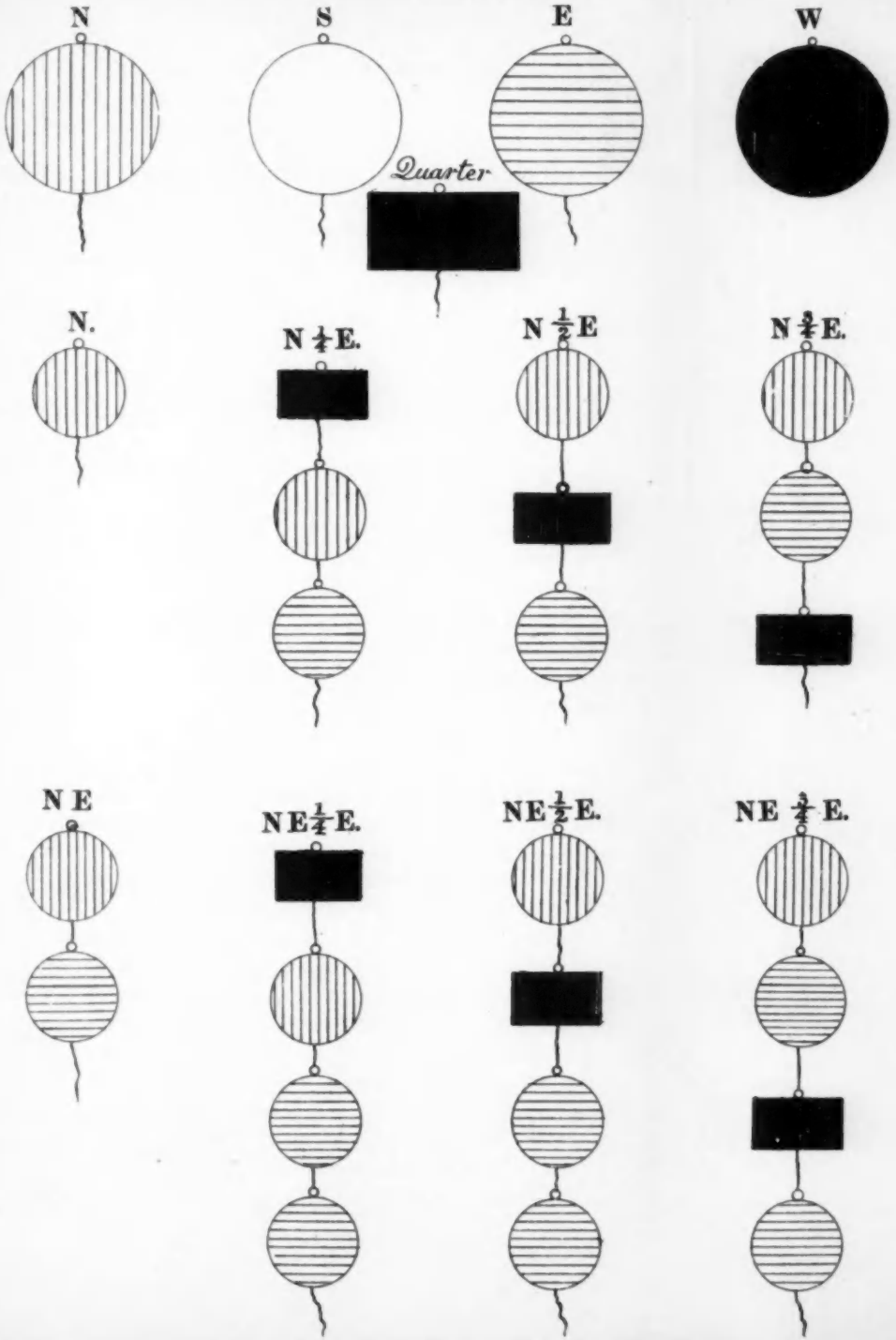
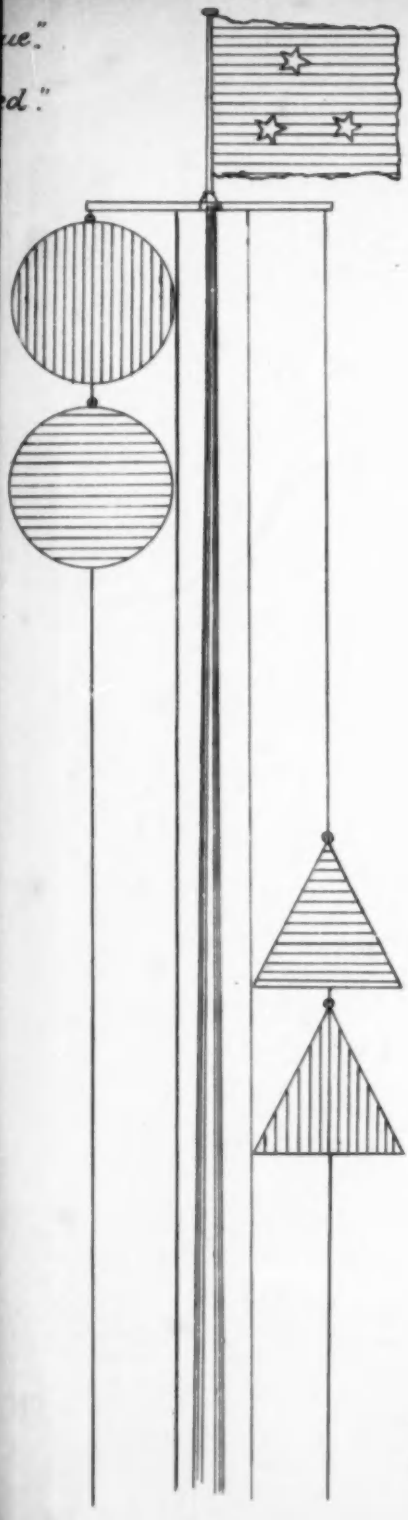


FIG. 5.

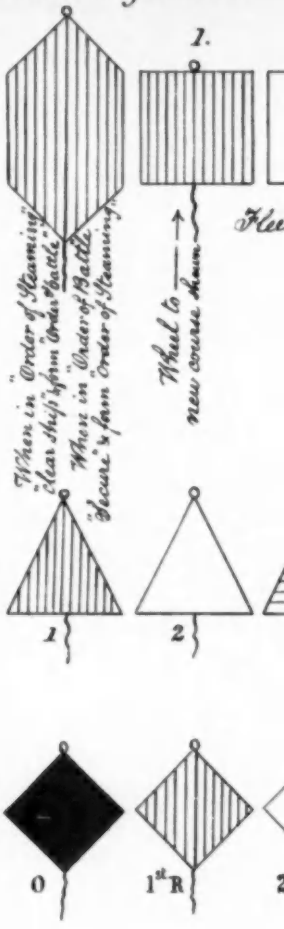
Light Steel signal mast, to be shipped in head of top-mast, with four armed truck, and staff & flag.

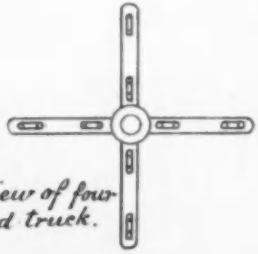
ue."

d."

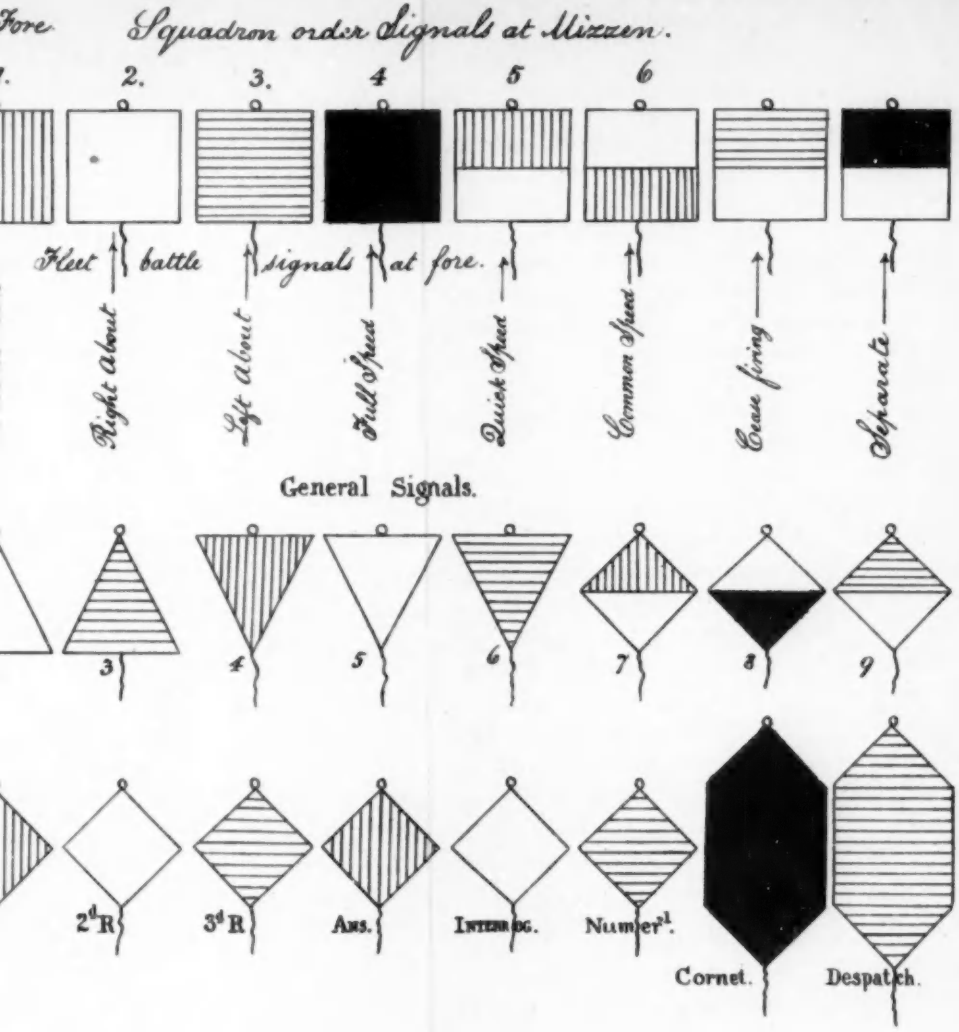


Fleet Order Sig. at Fore





Top view of four armed truck.


Fore
Squadron order Signals at Mizzen.
1.
2.
3.
4
5
6
Fleet
battle
signals
at fore.
Right About
Left about
Full Sheet
Quick Sheet
Common Sheet
Cease firing
Separate
General Signals.
3
4
5
6
7
8
9
2d R
3d R
Ans.
Interrog.
Number 1.
Cornet.
Despatch.

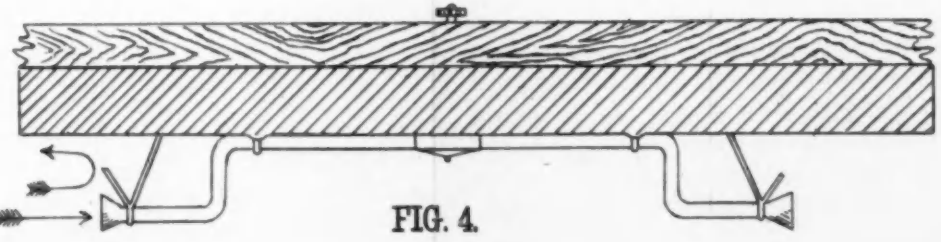


FIG. 4.

ing order. Each ship will be allowed one whale boat. The fleet will meet at H. R. on the 1st of June.

WM. JONES,
V. Admiral.

On the 1st of June the last vessel arrived at Hampton Roads and a few days after we heard that war had been declared with Albinage to settle a long contested dispute. We found, at the rendezvous, six squadrons, besides a fleet of rams, tugs and store vessels—the latter furnished by the mail companies.

On the 1st of June the following general order was published.

G. O. No. 1.

FLAG-SHIP COLUMBIA,
June 1st, 1906.

The interval and distance will be 300 yds. for order of battle. The speeds will be: Common 8 points, Quick 12, Full 15. The fleet will proceed to sea to-morrow at 8 A. M. The squadrons will pass out in 2nd order in succession. Fleet order of steaming will be formed as soon as the rear is clear of the Capes. The order of daily exercise will be: at 8 A. M. signal exercise, at 10 A. M., pass to order of battle and manœuver until 11.30. During the manœuvers the crew will be exercised at the guns &c. At 1.30, commanders of vessels will repair aboard their squadron flag-ships for instruction, remaining for one hour. The fleet will be stopped for their going and coming. At 3, flag-officers will repair aboard the Commander-in-chief, in their tugs, for discussion and instruction. At the same hour the commanders of vessels will assemble their officers for the same purpose. The answer to a signal will be its repetition, in order to insure its being seen by all and thoroughly understood; great care must be taken to haul down together. This refers to Compass and Battle signals. General signals will be answered as provided for in the signal book. As soon as the general battle signal is hoisted, masts and yards will be telescoped, and every preparation made for battle; when it is hauled down the order of battle will be formed. Broadsides will be preferred as the objective of firing. Concentration will be employed whenever practicable. The water line is the best place to aim at; especially for those ships which may be engaged on the side towards our own vessels. Rams and tugs will keep under cover, except when the former get a good opportunity to act; the latter will be on the look out-for disabled vessels, rendering them every assistance in keeping their position, or in taking off their

crews if in a sinking condition; they will only use their torpedoes when attacked. In passing an enemy, should the flag-officer in command of the exposed apex deem it expedient, he may form the 2nd order temporarily. The whistle will be used to signal a turn towards the enemy, then a charge at full speed. The first blast will be precautionary; the second one, for the execution of the plan. The flying squadron will be deployed when in steaming order, so as to observe all points of the horizon, always placing themselves so as to communicate either directly or in succession with the fleet. As soon as the enemy is sighted they will assemble and remain under cover of the fleet. In action they will capture disabled vessels, assist our own disabled ones and do such light fighting as may fall to them. The fleet of supply vessels shall follow the fleet, supplying it with coal and provisions whenever ordered by the commander-in-chief, at which times they will receive permanent invalids from the ships, supplying their places with men from their own crews, which have been increased for that purpose. In action they will keep well out of range, and will use every endeavor to escape if chased.

WM. JONES,
V. Admiral.

You will see that this general order provided for nearly every emergency.

June 2nd, according to order, we proceeded to sea, and cruised up and down the coast; each day rubbing off the rust that had accumulated since our last yearly drill. Our chief's plan soon became evident. He judged that our adversaries would come to us, and that their objective point would probably be their old favorite, the Chesapeake. This gave us several advantages; instead of pushing across the ocean we can employ our time in drilling, and we can keep our ships in the best trim, by always being filled up with coal and ammunition. Should he try any other part of the coast we are sure that our coast defenses will keep him at bay until we reach him.

On the 18th of June, at sunrise, in about the latitude of Hatteras and about 50 miles from the Cape, the enemy was signaled heading N. W.—in all 18 large vessels. Our fleet was headed S. E. and the order of battle hoisted, aboard the flag-ship. At 8 A. M. the enemy was 8 miles distant and was forming in two divisions of groups abreast. Our battle signal came down and we immediatley formed in order of battle heading S. E. At about 8.40 our leading vessels opened fire. The

shock was terrific. You know my ship led the van squadron. Our leading vessels opening with a concentrated fire on their leaders gradually changing to a broadside fire right abeam. Our firing was very rapid; it seemed as if our ships were always firing. The aim and accuracy was almost perfect. As the fleets advanced, our front overlapped them; they tried to break through us but the ordeal was too severe; only one vessel got as far as our interior, but the rams and reserve finished her; the rest were forced to swerve from their course and passed down our line, being rammed, jammed and torpedoed almost at will. As our left apex vessel reached what would have been nearly the position of their head, the first whistle was heard, soon followed by the other; we all turned toward the enemy, heading about N. E. Some of the remaining ships, of his shattered first line, tried to turn towards us, but our superior speed brought us round first and these poor fellows went down gallantly attempting to head to the foe; others seeing their hopeless condition, lying broadside to our ram-bows and rams, were forced to strike. It was while performing this turn, that the Brooklyn, the leading vessel of my squadron, was sent to the bottom by a Harvey. Her place was immediately supplied by the Hartford, from the center. On getting clear of the first line, we were surprised to find the second heading for us, so that in the same day, we were to have a chance to try our system against both column and line of groups. All fire was reserved until we met; we were now going at the tremendous speed of 15 knots; we had therefore only time to deliver two broadsides in passing through, but were more fortunate with our rams. As before, the enemy saw the impossibility of breaking through us divided like the earth before the plow, thus exposing to us the best position for ramming. After passing through, signal was made: Right about, and course S. W. when we changed the line again, this time getting it to greater advantage, as the remaining ships were attempting to re-form and meet us; but we had been too quick for them. This ended the battle, with the exception of a few individual sharp fights, where speed, superior metal and accuracy of fire finally gained the day. The enemy's loss was frightful; out of their 18 large ships 10 had been sunk by different means, and 7 captured; one had escaped when all was lost; this vessel and a few of the small fry are all that remain to them of that gallant squadron, once the ruler of the seas.

And now let us examine the results of this action, lasting in all just 35 minutes. We are now at the head of maritime nations in fact, as we have long been in reality; you know when they removed the re-

strictions on ship building and ship buying, which occurred with the general reaction in sentiment after the battle of Cady, our merchant marine also took a great start, and to-day our ship yards supply the world; the increase in wealth, to our people at large, would have paid for a hundred navies such as ours is to-day. Now, that we are able to guarantee perfect safety to our shipping, by our maritime supremacy, our ships will be in still greater demand. It is the old story about "Westward the star &c." The truth of the matter is, that our large navy to-day does not cost our people, in proportion to their wealth, one hundredth what it did forty years ago; because with our commerce, every other branch of industry has increased; we are now the great emporium, instead of the great market; we are the bank instead of the borrower.

And thus, my old friend, I have drawn for you as vivid a picture of our success, its causes, and its results, as my poor pen can trace. History will polish off the rough edges of my narrative and perhaps gild them.

I send you some extracts, taken from various official reports, which will show you how some of our ideas and inventions have worked in practice.

FLAG-SHIP COLUMBIA,
June 19th, 1906.

* * * * * * * *

The system of tactics worked beautifully, owing to the great mobility of our formation; we were enabled, at all times, to present a solid wedge to the enemy, which, moving at great speed, could not but break up his formations. The advantage of turning by ship, instead of by group, was shown by comparison in actual fight. The fears that some expressed, that our vessels were too close, proved themselves to be uncalled for. Our compactness was our strength. The shortness of duration of the action, 35 minutes, apparently incredible, was caused by the great speed at which we moved, and the immediate destruction dealt by our guns, rams and torpedoes. But few signals were made; these were, however, quickly answered and thoroughly understood. The whistle signal proved a success, as its shrill blast was heard above the bass notes of battle, with the greatest facility.

* * * * * * * *

WM. JONES,
V. ADMIRAL.

JNO. SMITH,
ADMIRAL OF THE NAVY.

FLAG-SHIP INDEPENDENCE,
June 19th, 1906.

* * * * * * * *

We found our squadron movements of the greatest service; they are complete. We passed from one to another, as the front changed, without confusion, almost without knowing it. It was not found necessary, to form the 2nd order, as we passed. I enclose the report of Captain Sad of the late Brooklyn.

THO'S NOSAM,
REAR ADMIRAL
COMMANDING 2nd SQUADRON.

WM. JONES,
V. ADMIRAL.

U. S. SHIP HULL, 2nd CLASS,
June 19th, 1906.

* * * * * * * *

We now noticed one of the enemy heading for us, evidently with the intention of ramming. He was approaching at an angle of about 30° with our keel. I let him come quite close, then sheered toward him and, as we ranged along side, gave him my forward guns and bow torpedo concentrated abreast his foremast, at about the water line. The effect was terrific. A hole about 25 feet square, into which the water rushed like a young Niagara, was the immediate effect. He sank, before he had passed us, and, I am afraid, carried most of his people with him, as his boats must have been shattered, and could not have been lowered, in the short space of time before he went down.

JAS. BOWLINE,
CAPT. COMD'G U. S. S. HULL.

CHAS. BACKSTAY,
COMMODORE COMD'G 5th SQUADRON.

U. S. S. FARRAGUT, 2nd C.,
June 19th, 1906.

* * * * * * * *

It also becomes my painful duty to report the death of my commanding officer Capt. Toggle. The forward dome was struck by a heavy shell, which exploded in it, smashed it to pieces and killed all those stationed there. I immediately assumed command and with the second firing officer and second navigator, fought the ship through the rest of the action. It seems providential that we were not all to-

gether and that means had been provided to work the ship from any of the domes.

WM. CROSSTREE,
LIEUT. COMMANDER COMD'G
U. S. S. FARRAGUT.

HENRY BLACKSTRAP,
COMMODORE COMD'G 4th SQUADRON.

U. S. MAIL STEAMER CITY OF NEW YORK,
June 19th, 1906.

* * * * * * * *

As soon as it was ascertained that the vessel was sinking, I called all hands on deck. The pumps were turned on the bolsas and they were ready by the time the men were up, which could not have been more than 30 seconds. We launched immediately and got clear of the ship just as she went down. The tug Relief came to our assistance and helped us get clear of the line. We then made sail and made the best of our way from the scene of action. The enemy, either from feelings of humanity, or, as we were hors-du-combat and could be easily picked up if they gained the victory, let us alone.

CHAS. SAD,
CAPT. COMD'G LATE BROOKLYN.

THOS. NOSAM,
REAR ADMIRAL COMD'G 2nd SQUADRON.

U. S. S. IRONSIDES, 3d CLASS.
June 19th, 1906.

* * * * * * * *

Finding that the engines would not turn I signaled for the tug Lively, which came on our starboard side; the Helper, seeing our condition, also came to us and placed herself on our port side. I sheered in to the centre according to signal, the Porter taking our place in splendid shape. With the assistance of the two tugs I was enabled to keep my new place.

JAS. LUCKY,
CAPT. COMD'G U. S. S. IRONSIDES.

JOE TOMPION,
COMMODORE COMD'G 1st SQUADRON.

FLAG-SHIP COLUMBIA,
June 19th, 1906.

* * * * * * * *

The signals worked as had been anticipated. They were seen and

answered quickly. This has proved a triumph for our signals, as well as for our ships. The Farragut was the only vessel that lost a mast, and she, not being a flag-ship, was not in thus-wise injured. All arrangements had been made, however, if a flag-ship had lost a mast, to use the horn of the truck, toward the lost mast, of the next mast.

CHAS. BLUELIGHT,
FLAG LIEUTENANT
AND CHIEF SIGNAL OFFICER.

WM. JONES,
V. ADMIRAL.

U. S. RAM LIGHTNING.
June 19th, 1906.

* * * * * * * *

Just as she passed the Independence, under whose quarter I had been hovering, I made for her. She saw me, and, as I got within range, opened on me with all her guns. Thanks to our armor and its inclination, the shot glanced off of us in all directions. She then tried to sheer, but our great speed carried our bow into her in no time. I did not try to strike her in full broadside, as I was afraid of being carried down with her; but as we approached her, I headed for her stern and struck her in the wake of her mizzen rigging; just as we struck I discharged my bow submarine gun, whose projectile must have blown a large hole in her other quarter.

JOHN HOPE QUICKPROMOTION,
LIEUT. COMD'G LIGHTNING.

THOS. NOSAM,
REAR ADMIRAL COMD'G 2nd SQUADRON.

U. S. RAM JAMMER,
June 19th, 1906.

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Finding that she would pass, before I could use my ram, I sheered and gave her my quarter submarine gun. The effect was not evident, at first, as the wound was under water; and I was afraid that the shot had glanced under her bottom. I could not account for this as I had given elevation. She seemed to settle as I saw her last however. I have since been told, by one of the prisoners, that one of their vessels had gone down in a vastly marvelous way, the projectile apparently coming from the bottom of the sea. They judged it to be some kind of fish torpedo.

JAS. BETTERLUCK,
LIEUT. COMD'G RAM JAMMER.

CHAS. BACKSTAY,
COMMODORE COMD'G 5th SQUADRON.

U. S. Tug Alert,
June 19th, 1906.

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The enemy's vessel approached, evidently with the intention of running me down. We were almost bow to bow: I sheered slightly to starboard as he was almost on me, and as I passed gave him my quarter spar torpedo on the bluff of his bow. I could have taken my little vessel into his hold without any difficulty, through the hole that we had made.

Jim Cricket,
Master Comd'g Alert.

Thos. Nosam,
Rear Admiral Comd'g 2nd Squadron.

These extracts close my account. This battle has been to me a double victory, a victory in fact and a victory of theory. You will remember that, at one of our monthly meetings of the Naval Institute, when you and I were young lieutenants, I proposed some of the ideas which you see to-day elaborated by skilful inventors, and perfected by experiment. The signals and tactics I was fortunate enough to get introduced myself, some ten years ago, when detailed as chief of that department. Some said, at the time, that I was riding my hobby too fast, but you know that in life, if a man ever does get a chance, he generally prefers his own old war horse to a new mount, and takes off the curb, if necessary, to keep ahead; and if Columbus had not set his egg on end some one else might have done it as easily, but perhaps after a long interval.

For this victory the Navy has, in the first place, to thank our people, then our Naval Academy, our Naval experimental battery, and torpedo school, and last, but not least, our Naval Institute, which has been the means of collecting and encouraging the ideas of officers. This institution had a hard time in its youth, but it now stands amongst the first societies of technical learning in the world. I believe that you are still an honorary member; are you not?

For this victory, in return, our country has to thank our Navy, its officers and men. We have wiped out the old stain of Cady, and our flag can now float in any part of the world the proudest of the proud, because it represents the first maritime and the first commercial nation of the globe, and we have earned a lasting peace by displaying our full preparation for war.

Excuse me, dear old fellow, if I seem to be carried away by our suc-

cess, but I am sure that you will overlook anything from an old friend after a return from a 35 minutes residence in the infernal regions.

Write soon and let me know how my farm is getting on. I hope to be home before the harvest is ripe and hang my laurels on my garden gate.

Yours sincerely,
THOS. NOSAM.

R. SREGOR, ESQ.
OAKLANDS.

LIEUT. RODGERS inquired whether the line of battle formation proposed by the gentleman was adapted to any number of vessels.

LIEUT. MASON replied that it was adapted to any number greater than three.

LIEUT. VERY requested the gentleman to explain what difference existed in the code of signals suggested, between the signals "South West" and "South by West."

LIEUT. MASON replied that there was no difference. He stated that he was not prepared to argue any question in relation to his suggested code of signals. He was satisfied that it was deficient in many respects. The idea, however, of using solid flags, barrels and cones in place of the flying flags he thought worthy of some consideration, and it was simply to illustrate the forms of these signals that the chart had been drawn. As to the other charts, he was ready to discuss any question that came under them.

COMMANDER FARQUHAR objected to the line of battle formation advocated, on the ground that two thirds of the vessels of the fleet could not use their batteries on going into action, without firing into one another.

COMMANDER SAMPSON stated that, in his opinion, the same objections urged against the old line of battle, could be well taken in regard to the proposed one. A few ships would be compelled to do all the fighting. The proper formation, he believed to be the one in which all the ships could be brought into action at once. Under Lieut. Mason's plan only a few ships could act, unless the enemy was very accommodating, a very improbable thing. After exchanging broadsides, he said, everything depended on the courage and judgment of the commanding officer, consequently the most favorable circumstances should be taken advantage of in the outset.

LIEUT. MASON replied that he could not see how the enemy could bring

any more force to bear upon him than his front commanded. The object of his formation, he said, was to break the line of battle proposed by Commander Noell, or even to pass through it. Supposing, he said, the two lines of battle had passed through one another without breaking, under his system all that would be necessary would be for each individual ship to go about, and the same line of battle was presented to the enemy, while under Commander Noell's it would be necessary to re-form, or his fleet would be placed at a great disadvantage.

Lieut. Very stated that he granted that there was great strength in the line of battle proposed by the member; suppose however that his line should be broken, would he, or rather could he re-form? Under Commander Noell's system, his line being broken, the vessels then acted in detached groups.

Lieut. Mason replied that he had provided for such an emergency He had not abandoned, entirely, the system of detached groups. If possible he would re-form, if not the group system would be used. He thought however, it would be a difficult thing to break his line, as after the two lines had become engaged he could bring a terrific concentrated fire to bear in almost every direction.

Admiral Rodgers stated that while he did not agree with Lieut. Mason in a great many of his arguments, especially in regard to his line of battle, he deemed the paper a valuable one, and a great many ideas advanced in it worthy of consideration. He moved the thanks of the Institute be tendered to Lieut. Mason.